



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

June 5, 2014

### MEMORANDUM

Subject: Scientific Management Decision Point for the Falcon Refinery Superfund Site, Barge Dock Area (AOC4)

From: Kenneth Shewmake  
Ecological Risk Assessor

To: Brian Mueller  
Remedial Project Manager

#### **Scientific Management Decision Point:**

Consistent with EPA guidance (EPA, 1997), the Screening Level Ecological Risk Assessment (SLERA) concludes with a Scientific Management Data Point (SMDP) with three possible decisions for this point:

1. There is adequate information to conclude that ecological risks are negligible and therefore there is no need for remediation on the basis of ecological risk.
2. The information is not adequate to make a decision at this point, and the ecological risk assessment process will continue (steps 3-8).
3. There is adequate information to support a risk management decision such as taking action to eliminate an identified exposure pathway.

#### **Decision:**

The SLERA for the Falcon Refinery Superfund Site, barge dock area of concern (AOC) 4, indicates that there is adequate information to conclude that ecological risks associated with the Site are negligible for the exposure routes and receptors evaluated in the SLERA. As such, there is no need to further evaluate ecological risks or proceed with steps 3 through 8 of the ERA process for AOC4. Likewise, it is unnecessary to develop remedial action objectives to protect ecological receptors in AOC4 because adverse ecological risks are unlikely.

#### **Basis for Decision:**

The Falcon Refinery Superfund Site occupies approximately 104 acres in San Patricio County, Texas and consist of an inactive oil refinery. The refinery has not been used to produce hydrocarbon products in several years, but it has been used as part of a crude oil storage operation being conducted by Superior Crude Gathering, Inc. The Site has been divided into seven areas of concern (AOCs) based upon former use and location (Figure 1). AOC 4 is approximately 1.6 acres and consist of a barge dock facility. The barge dock facility is fenced and contains several small structures. AOC-4 is separated from the main refinery facility and borders AOC-5 (evaluated separately) which includes the Intracoastal Waterway. Other than the Intracoastal Waterway, no additional sensitive environmental areas exist within 500 feet of AOC-4. The barge dock area is connected to the main refinery area by several abandoned pipelines and one active pipeline. In June 2006 the abandoned pipelines were cut, the contents of the pipelines were removed, and plates were welded on the pipelines. The area

represented by AOC4 is being evaluated separately from the remainder of the Site because it does not border the main refinery area.

AOC-4 is mostly barren of vegetation with scattered patches of herbaceous vegetation interspersed among the roads and storage areas. Plant species consist primarily of disturbance-tolerant grasses and forbs. As such, AOC4 is expected to provide relatively poor, isolated habitat for wildlife. Site investigations have found that soils at the Site are disturbed and compacted due to vehicle traffic and storage. Soil survey data indicates that local soils consist of former dredged material, with some areas consisting of moderately alkaline massive clays while other areas consist of moderately alkaline fine sands. This substrate's compacted structure presents physical and nutritional challenges to colonization and establishment of plant and soil invertebrate communities. Given the proximity of the ICW and potential for flooding during hurricanes, salinity may play a natural role in limiting plant growth and diversity. Thus AOC-4 is likely to provide relatively poor habitat for plants and invertebrates. Existing soil is compacted and disturbed; should restoration occur at the Site, it would require major physical changes to the substrate such as mixing, addition of organic matter, or re-grading. The anticipated future use of the Site is that it will continue industrial use as a barge docking area.

The results of the SLERA showed that some metals exceeded screening criteria and were carried forward for further evaluation. This included food chain modeling for selected measurement receptors, use of 95UCL concentration values for exposure point concentrations, and comparison to LOAEL and NOAEL toxicity reference values (TRVs). The results are summarized below.

- **Terrestrial plants**—When 95 percent UCL values are compared to TRVs protective of terrestrial plants, barium, chromium, mercury, vanadium, and zinc are found in exceedance.
- **Soil invertebrates**—When 95 percent UCL values are compared to TRVs protective of soil invertebrates, barium, chromium, mercury, and zinc are found in exceedance.
- **Avian wildlife**—When 95 percent UCL values are compared to NOAELs protective of avian receptors, barium, cadmium, copper, lead, vanadium, and zinc are found in exceedance. When 95 percent UCL values are compared to LOAELs protective of avian receptors, vanadium and zinc are found in exceedance.
- **Mammalian wildlife**—When 95 percent UCL values are compared to NOAELs protective of mammalian receptors, zinc is found in exceedance. When 95 percent UCL values are compared to LOAELs protective of mammalian receptors, no chemicals are found in exceedance.

However, a number of factors indicate that the potential for risk from these metals is minimal for AOC-4. Specifically, metal bioavailability and toxicity are likely over-estimated; site habitats are subject to non-chemical factors that limit habitat quality and would require extensive alteration to support higher quality habitat; and exceedances are limited in spatial distribution. Moreover, the maximum detected concentrations of barium, chromium, lead, vanadium, and zinc did not exceed the background concentrations and would not warrant risk management. After removing the metals that did not exceed background levels from consideration, the only exceedance is for mercury and in only one location for soil invertebrates. Due to the low quality soil, disturbed habitat in the area, along with the likely overestimation of risk using conservative exposure values, it is unlikely that further evaluation would show unacceptable risk to ecological receptors. Because of this it is my recommendation that the ecological risk assessment for AOC 4 can be concluded, and that remedial goals for ecological risk are not needed.



Falcon Refinery Superfund Site  
 Ingleside, San Patricio County, Texas